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Pleurothallis, Habenaria, Pogonia, and Microstylis. The descriptions of species in each genus are preceded by determinative keys.—J. M. GREENMAN.

North American flora.⁹—Volume IX, part 3, of this work consists of an elaboration of the Agaricales as follows: Boletaceae and Chantereleae by W. A. MURRILL, and Lactariae (pars) by G. S. BURLINGHAM. New species are described in Gyroporus (1), Ceriomyces (5), and Suillellus (1). Three new monotypic genera of the Agaricaceae are proposed, namely, *Polyozellus*, *Plicaturella*, and *Chlorophyllum*.—J. M. GREENMAN.

NOTES FOR STUDENTS

Graft hybrids.—The question of graft hybrids continues to grow in interest. WINKLER's previous papers on this subject have already been reviewed in this journal.¹⁰ His latest contribution¹¹ deals with the second and later generations of the graft hybrids between *Solanum nigrum* and *S. lycopersicum*, and with the chromosome numbers in these forms. It is found that the different graft hybrids fall into a series resembling most one or the other parent, in the following order: *S. nigrum*, *S. Gaertnerianum*, *S. Darwinianum*, *S. tubingenense*, *S. proteus*, *S. Koelreuterianum*, *S. lycopersicum*, the first three graft hybrids being most like *S. nigrum* and the last two nearest *S. lycopersicum*. In the F₂ the first three revert to *S. nigrum*, while the other two produce the tomato. Large numbers of offspring were grown in some cases, e.g., 1200 individuals in the F₂ of *S. tubingenense*, all of which without exception were pure *S. nigrum*. The F₃ and F₄ and later generations continued true *S. nigrum*. Regenerated adventive shoots also reverted only to the nightshade, but in the case of *S. proteus* reversions to both parents occurred, and in this and other cases various chimeras appeared from adventive shoots. *S. Gaertnerianum* is almost sterile and shows little tendency even to parthenocarpy, which is more frequent in some of the others.

Crosses of the graft hybrids with the parent they most resembled gave similar results, e.g., *S. tubingenense* × *S. nigrum* gave only *S. nigrum*. Crosses with the more distant parent, as *S. tubingenense* × *S. lycopersicum*, failed to produce seeds, although parthenocarpy frequently occurred.

Regarding the chromosomes, in *S. lycopersicum* the numbers were 12 (haploid) and 24 (diploid), and in *S. nigrum* 36 and approximately 72, therefore three times as many. If a fusion of nuclei took place in the production of the graft hybrid, one might expect the latter to have 72+24 (96) chromosomes unless a regulation in the number afterward occurred; but this number is not found. Instead, *S. tubingenense*, *S. Darwinianum*, and *S. Gaertnerianum* were found to have 36 chromosomes in their pollen mother cells (after reduction), while the other two

⁹ North American flora. Vol. IX, part 3. pp. 133-200. New York Botanical Garden. 1910.

¹⁰ BOT. GAZETTE 47:84, 250; 48:478. 1909.

¹¹ WINKLER, HANS, Ueber die Nachkommenschaft der Solanum-Pfropfbastarde und die Chromozomenzahlen ihrer Keimzellen. Zeit. Bot. 2:1-38. 1909.